

Serial No. 10/692,483  
Amdt. dated May 21, 2007  
Reply to Office action of Dec. 22, 2006

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of claims:**

1. (currently amended) A random number generation apparatus which produces a random number sequence for which an appearance balance of 1/0 has an equal probability, comprising:

random noise generation means for generating random noise by measuring physical noise;

random pulse wave generation means for generating a random pulse wave by waveshaping the random noise;

binary pulse sequence conversion means for sampling the random pulse wave ~~at~~ with a first clock of a constant period and converting it into a binary pulse sequence of a constant period, which has on/off of the sampled values as a pulse code; and

binary pulse sequence code smoothing means for un-reversing and reversing polarity of the binary pulse sequence every half period of a second clock which is synchronous with and has a frequency one-half that of said first clock ~~reversing polarity of the binary pulse sequence at intervals of a constant period and smoothing appearance balance of 1/0 code in a specified unit of code length,~~

wherein a random number sequence of the smoothed binary pulse sequence code is generated, said un-reversing and reversing polarity ensuring that said random number sequence has an appearance balance of 1/0 with an equal probability.

2. (currently amended) The random number generation apparatus according to claim 1, wherein the random pulse wave is generated so that the generation interval of the random noise defines the

Serial No. 10/692,483

Amdt. dated May 21, 2007

Reply to Office action of Dec. 22, 2006

~~is~~ on/off time of each pulse.

3. (currently amended) The random number generation apparatus according to claim 1, wherein the outputs of random noise ~~composed by using~~ a plurality of ~~the~~ random noise generation means are ~~is~~ inputted to the random pulse wave generation means such that the on/off and occurrence frequency of on/off of the random pulse wave is increased.

4. (currently amended) The random number generation apparatus according to claim 1, wherein the random pulse wave generation means ~~is constituted of~~ comprises pulse generation means which receives said random noise at an input, said pulse generation means arranged such that its ~~the~~ output state ~~of which~~ changes for every occurrence ~~input~~ of the random noise received at said input ~~as a trigger pulse~~.

5. (currently amended) The random number generation apparatus according to claim 1, wherein the binary pulse sequence code smoothing means comprises ~~is constituted of~~ a 1/2 divider, which divides the ~~clock~~ frequency of said first clock by ~~into~~ half to generate said second clock, and an XOR gate which receives said binary pulse sequence and said second clock at respective inputs and provides said smoothed binary pulse sequence at its output, ~~which is inputted with output of the 1/2 divider and the binary pulse sequence~~.

6. (currently amended) The random number generation apparatus according to claim 1, wherein the binary pulse sequence code smoothing means comprises ~~is constituted of~~ a 1/2 divider, which divides the ~~clock~~ frequency of said first clock by ~~into~~ half to generate said second clock, and a logic circuit, which reverses

Serial No. 10/692,483

Amdt. dated May 21, 2007

Reply to Office action of Dec. 22, 2006

the binary pulse sequence synchronously ~~synchronizing~~ with said  
second clock output of the 1/2 divider by turns to un-reverse and  
reverse the polarity of the binary pulse sequence every half  
period of said second clock output the reversed binary pulse  
sequence.